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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/927,909	08/13/2001	Roland Cwik	1748X/50294	5184

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EXAMINER
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KERNS, KEVIN P

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 03/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/927,909	<b>Applicant(s)</b> CWIK ET AL.	
	<b>Examiner</b> Kevin P. Kerns	<b>Art Unit</b> 1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2 and 3 is/are allowed.
- 6) ☒ Claim(s) 1 and 4-18 is/are rejected.
- 7) ☒ Claim(s) 2-7 and 10-14 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 August 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

*Handwritten initials*

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “means provided for ensuring that...” (claim 1) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: the limitation “meander structures” (claim 12) is absent from the specification and drawings.

3. The disclosure is objected to because of the following informalities: in paragraph [0003], last line, a “,” should be deleted after “used”. In paragraph [0007], last line, “solidstate” should be written as “solid state”. In paragraph [0017], 2<sup>nd</sup> line, replace “press” with “present”. In paragraph [0030], 2<sup>nd</sup> line, replace “di5tributor” with “distributor”. In paragraph [0046], last line, delete “,” after “in”. Appropriate correction is required.

***Claim Objections***

4. Claims 2, 3, 10, 12, and 18 are objected to because of the following informalities: in claim 2, 2<sup>nd</sup> line from the end, delete “in” before “such”. In claim 3, 3<sup>rd</sup> line from the end, replace “and” with “unit” after “distributor”. In claim 10, 1<sup>st</sup> line, insert “the” before “distributor”. In claim 12, 3<sup>rd</sup> line, delete “the” after “of”. In claim 12, 4<sup>th</sup> line, insert “duct” before the 1<sup>st</sup> instance of “structures”. In claim 12, 4<sup>th</sup> line, insert “,” before “and”. In claim 18, 2<sup>nd</sup> line, delete “a” before “fuel-cell”. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1 and 4-18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

With regard to claim 1, the limitation “means is provided for ensuring that...” fails to comply with the enablement requirement, as structure and/or functionality (“means plus function”) of this limitation is not clearly set forth in the specification and drawings. Which structure in the drawings (or specification) is this “means...”? Without the “means” being clearly set forth in the disclosure, claim 1 is not enabling to one of ordinary skill in the art.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1 and 4-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to claim 1, it is unclear what structure is indicated by the limitation "means is provided for ensuring that...". Is this a control system, thermocouple etc.?

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 1, 8, 9, and 15-17 (insofar as definite in view of the 35 USC 112, 1<sup>st</sup> and 2<sup>nd</sup> paragraph rejections above) are rejected under 35 U.S.C. 103(a) as being unpatentable over Stout (US 5,423,952) in view of Yamada et al. (US 4,371,034).

Stout discloses a device in which distilland is fed from a common feed to a distributor unit and then to parallel tubes spaced apart from one another. The distributor

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unit has an outlet arrangement assigned to the parallel spaces with the outlets projecting into the tubes. The tubes serve as evaporator structures since the liquid distilland supplied to the tubes is at least partially evaporated in the tubes. (column 3, lines 5-19; column 4, lines 59-68; column 5, lines 1-11; and Figures 2, 4, and 5). Insofar as interpreted from claim 1, Stout does not specifically disclose a structure analogous to the “means for ensuring that...”, as well as use as a plate reactor or evaporator with a plate-like construction.

However, Yamada et al. disclose a plate type reformer that includes a plurality of vertically extending plate elements defining alternate channels for a heating medium and for a liquid to be evaporated, with the heat transfer surface of each plate element having a plurality of vertically extending transversely spaced ridges projecting toward the associated liquid channel, such that the spaced ridges serve as a structure analogous to the “means for ensuring that...” (insofar as definite) and are advantageous for further assisting in the generation of vapor of even higher boiling heat transfer (abstract; column 2, lines 25-65; column 3, lines 20-68; column 4, lines 1-68; column 5, lines 1-27; column 6, lines 1-6; and Figures 1-5).

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to modify the evaporator device disclosed by Stout, by using a plate type reformer as the evaporator structure, including the “means for ensuring that...” (ridges), as taught by Yamada et al., in order to further assist in the generation of vapor of even higher boiling heat transfer (Yamada et al.; abstract; and column 2, lines 25-65).

12. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stout (US 5,423,952) in view of Yamada et al. (US 4,371,034), as applied to claim 1 above, and further in view of Tomimatsu et al. (US 6,447,941).

Stout (in view of Yamada et al.) disclose and/or suggest the elements of claim 1 above. Neither Stout nor Yamada et al. specifically discloses use of the device in a fuel-cell system.

However, Tomimatsu et al. disclose a fuel cell system that includes an evaporator device that evaporates liquid fuel in respective unit cells for further distribution to the fuel cell, such that the evaporator/distributor device are advantageous for supplying fuel to the fuel cell and enabling the liquid fuel supply system to be simplified while permitting the cell size to be miniaturized (abstract; column 2, line 41 through column 5, line 51; column 7, line 21 through column 15, line 12; and Figures 1-9 and 18-21).

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to modify the evaporator device disclosed by Stout, by using a plate type reformer as the evaporator structure, including the "means for ensuring that..." (ridges), as taught by Yamada et al., in order to further assist in the generation of vapor of even higher boiling heat transfer, and by further using the device with a fuel cell system, as disclosed by Tomimatsu et al., in order to supply fuel to the fuel cell and enabling the liquid fuel supply system to be simplified while permitting the cell size to be miniaturized (Tomimatsu et al.; abstract; and column 2, lines 41-51).



***Allowable Subject Matter***

13. Claims 2 and 3 are allowed. [Note: claims 2 and 3 contain claim objections, and these claims should be amended to correct them.]

14. Claims 4-7 and 10-14 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

15. The following is a statement of reasons for the indication of allowable subject matter: the reasons for allowance (for independent claims 2 and 3), as well as the reasons for the indication of allowable subject matter (for dependent claims 4-7 and 10-14), remain unchanged from the reasons set forth in paragraph 12 of the Office Action mailed on October 1, 2004.

***Response to Arguments***

16. The examiner acknowledges the applicants' amendment received by the USPTO on January 3, 2005. The amendments overcome prior objections to the specification and claim rejections under 35 USC 112, 2<sup>nd</sup> paragraph (see paragraphs 1-7 of prior Office Action). However, new objections to the drawings, specification, and claims, as well as new 35 USC 112, 1<sup>st</sup> and 2<sup>nd</sup> paragraph rejections, are cited in paragraphs 1-8 above. Claims 1-18 remain under consideration in the application.

17. Applicants' arguments with respect to claims 1 and 4-18 have been considered but are moot in view of the new ground(s) of rejection.

**Conclusion**

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Kevin P. Kerns whose telephone number is (571) 272-1178. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin P. Kerns *Kevin Kerns 2/24/05*  
Examiner  
Art Unit 1725

KPK  
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February 26, 2005